

e192 Datasheet





Clamping modalities	Voltage clamp	Designed for	BLM experiments
Channels number	192	Front end TIA	Capacitive
ADC bit-depth	16		

Headstage ranges:

Range	$\pm 200\text{pA}$	$\pm 2\text{nA}$	$\pm 20\text{nA}$	$\pm 200\text{nA}$
Resolution [fA]	~ 6.1	~ 61	~ 610	~ 6100
Gain [MΩ]	2250	225	22.5	2.25
Typical open input noise @10kHz [pA_{RMS}]	0.53	0.74	4.3	38
Typical open input noise @100kHz [pA_{RMS}]	4.5	5.8	24	230

Digitisation scheme Δ - Σ modulation + sinc3 demodulation

Sampling rates:

SR [ksps]	~ 1.221	~ 4.883	~ 9.766	~ 19.53	50	100	200
Sampling period [μs]	819.2	204.8	102.4	51.2	20	10	5

Stimulation 192 independent DACs for the input pins

Stimulation ranges:

Source	Internal
Range	$\pm 500\text{mV}$
Bit-depth	10
Resolution [mV]	1
Analog filters [kHz]	0.01, 10

Reference voltage	GND		
Offset compensation	range $\pm 50\text{mV}$, resolution $100\mu\text{V}$		
ZAP	-1V for 100ms	Warm up time	40 minutes
Power supply	Custom power unit	Data interface	USB 3
Input connector	Custom PCB (see below)	Digital I/Os	4 TTL I/Os
Power consumption [W]	45		
Dimensions [mm]	17.6x14.4x15.2cm	Weight [g]	3166

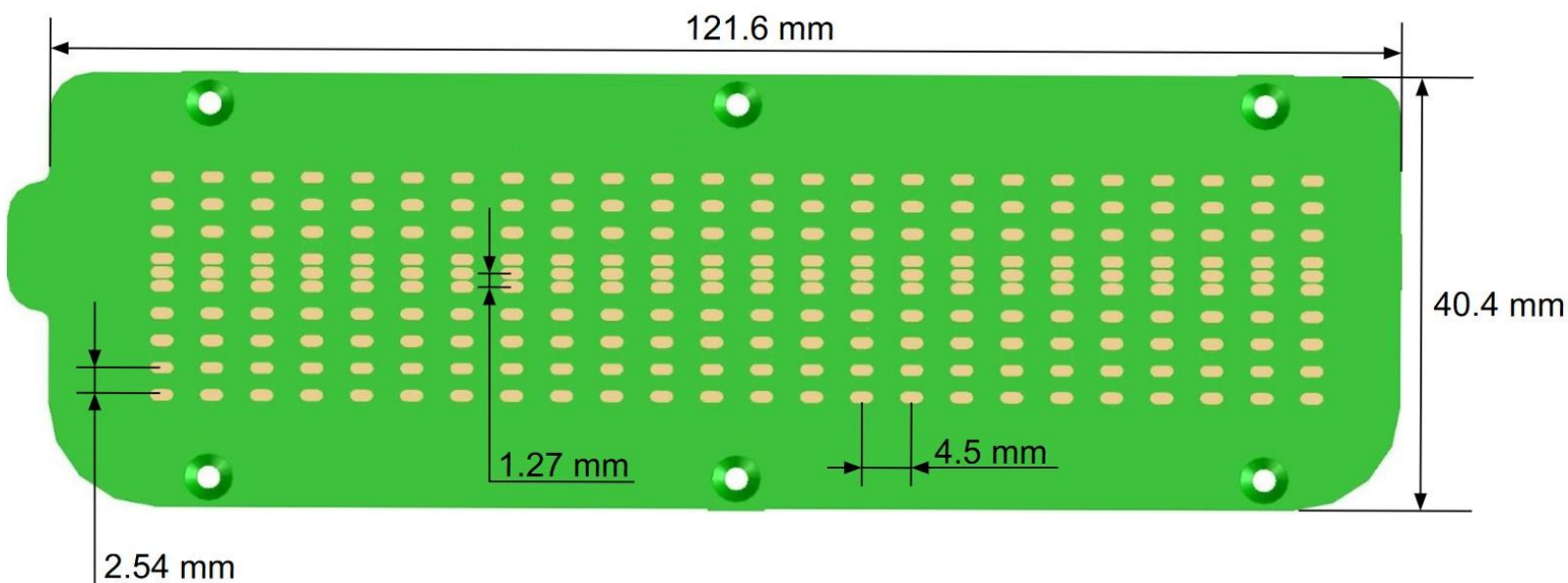


Input connector PCB

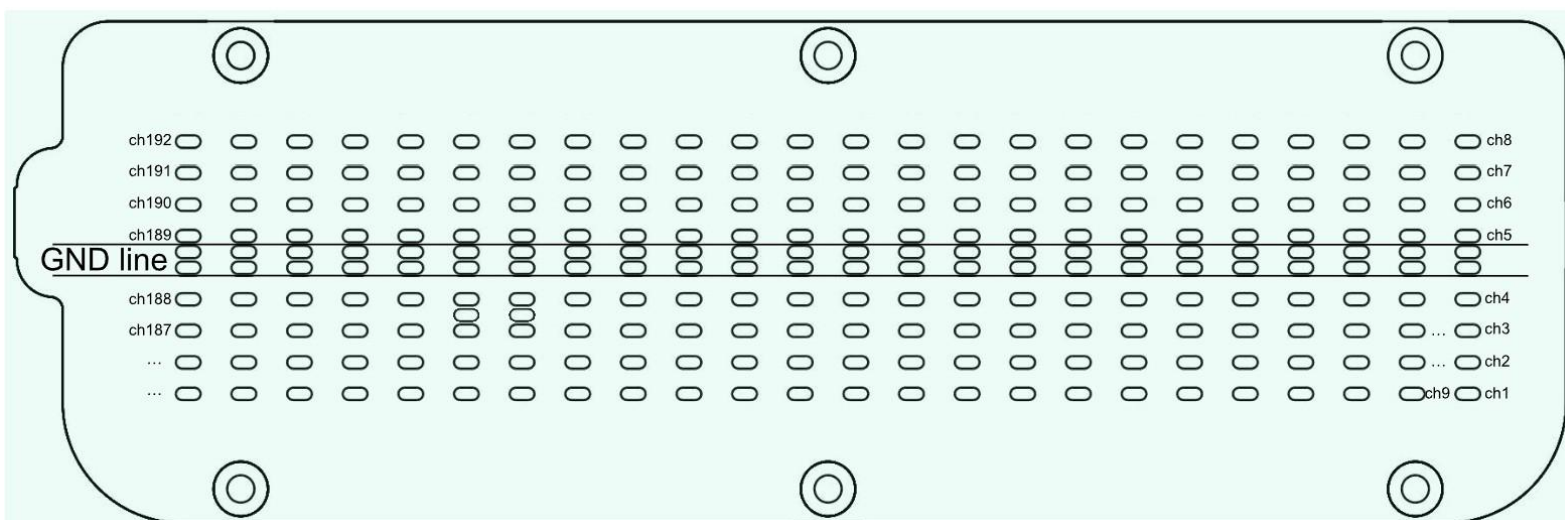
A customized input PCB connector has to be designed to interface the amplifier with the flowcell / microfluidic cartridge.

The input PCB connector has a defined bottom layer, for the interface with the amplifier

Bottom view with measures

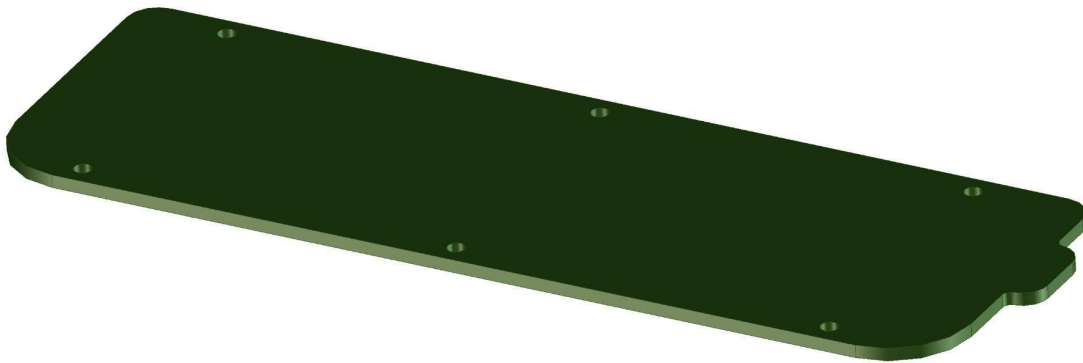


Bottom view with channels numbering



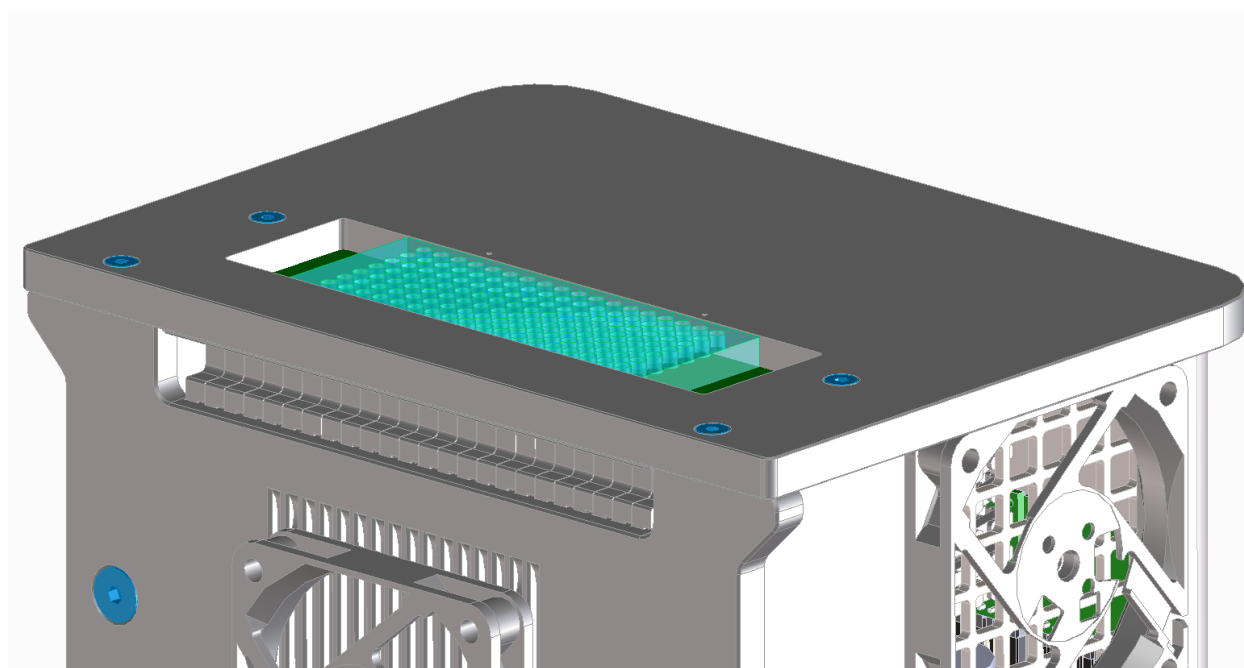
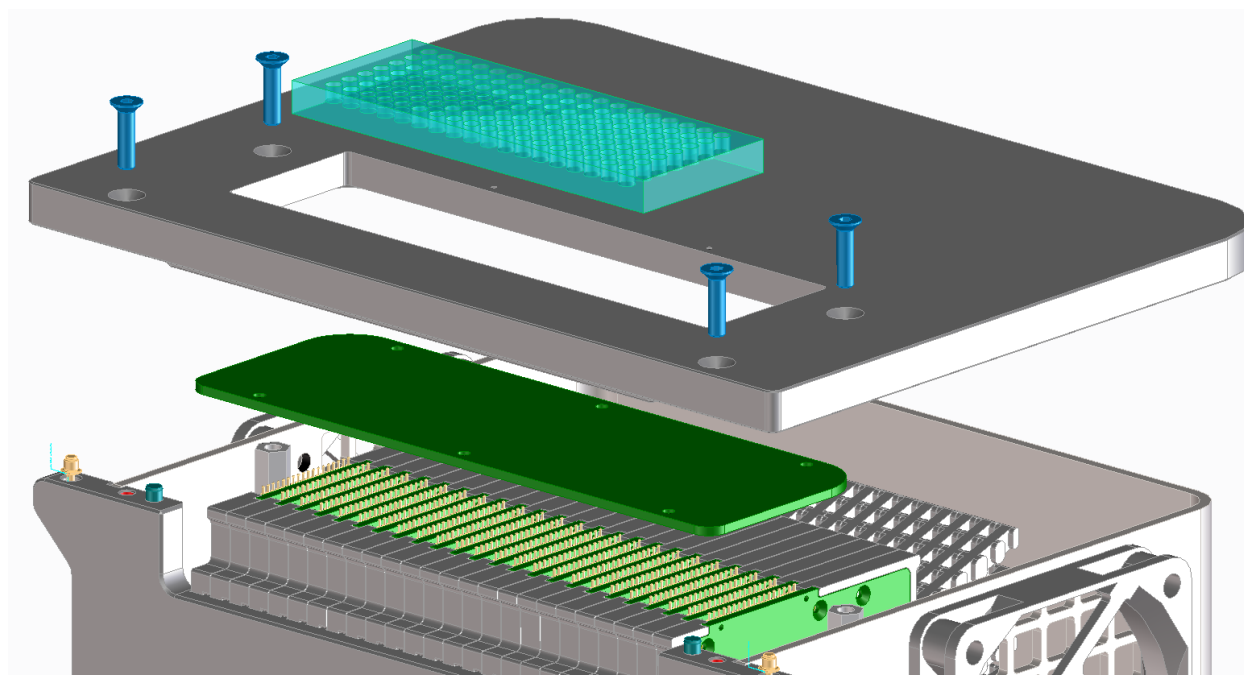


Isometric top view



An aluminum lid is provided to lock the input PCB connector in place against the input pogo pins and to shield against electro magnetic environmental noise.





The lid encloses the whole input PCB connector, so a proper custom access needs to be designed to interface the input PCB connector with the flowcell / microfluidic cartridge.



Customization for 96 channels

The e192 can be customized to work with only 96 channels. In this case only half of the analog modules are mounted within the instrument, such that the channels from 1 to 96 are operative.

In this case the device reads half current signals, applies half voltage stimuli, consumes roughly half power and weighs 2650 g. It is otherwise identical to the 192-channel.

